



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,112	02/26/2004	Ching-Wei Chang	J-SLA.1477	7586
55428	7590	04/18/2007		
ROBERT VARITZ 4915 SE 33RD PLACE PORTLAND, OR 97202			EXAMINER WASHINGTON, JAMARES	
			ART UNIT	PAPER NUMBER
			2609	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		04/18/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

58

Office Action Summary	Application No.	Applicant(s)	
	10/789,112	CHANG, CHING-WEI	
	Examiner	Art Unit	
	Jamare Washington	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/26/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Ravishankar Rao et al (US 5943477).

Regarding claim 1, Rao discloses a device-specific dot-gain reducing method for multi-level color-image halftoning regarding the output of a selected color-imaging multi-level halftone output device comprising:

based upon observed pixel-infeed-to-halftoning-pixel-output operational characteristics of such a device (“The method takes account of the fundamentally probabilistic nature of...printing any dot on some types of printers...It allows estimating the probability distribution of what gets printed at each pixel depending on the local configuration of dots to be printed...” at

column 4 line 17), creating a pixel-and-color-specific dot-gain reduction curve which relates, as data points for each output color of the device (“...calibration curve...” as described in column 8 line 15), selected corrections in device pixel infeed intensity to different pre-selected halftone dot patterns of plural pixels including a contained subject pixel which is to be output from the device (“The calibration...allows one to predict the amount of ink that any matrix M will generate at each pixel (i,j): one just has to consider successively each pair (i,j) as the center and inspect the matrix M to find C and k for each (i,j)...” at column 8 line 5), where those dot patterns collectively represent the halftone dot-pattern population characteristics of an expected halftoned color image which is to be output by the device (Figs. 1C and 1D),

at a point in the image-processing flow of a stream of color-image pixel data which is upstream from the region where color-image device outputting takes place (Fig. 6 numeral 74) , and downstream from where halftoning of that data occurs (Fig. 6. Halftoning occurs in the halftoning engine and the data is sent to data storage where it is then sent to the image processor.), and for each pixel in the data which is to be output ultimately to become a color-visible pixel, determining in which pre-selected halftone dot pattern that pixel effectively lies and is associated as the contained subject pixel and the output color intended for that pixel (Fig. 4 numerals 42-44), and then,

relevant to said determining, and in relation to such a determined halftone dot pattern, appropriately applying to the associated, contained subject pixel the created dot-gain reduction curve (“The lookup table entry 43 at this index specifies the density of ink that the paper will contain at the center of this 3X3 neighborhood in function block 44” at column 8 line 36. “The dither mask generates a halftone matrix M for this image and the use of the calibration described

in this disclosure can then be used to predict the actual amount of ink that is printed. This in effect generates the calibration curve..." at column 8 line 11. (**"For color printers, the method according to the invention is used independently for each color ink" at column 8 line 46).**

Regarding claim 2, Rao discloses the method as rejected in claim 1 above, wherein, with respect to each pre-selected halftone dot a pattern of plural pixels, the associated, contained subject pixel lies centrally within the pattern (Fig. 2 shows 3X3 matrix with pixel (i,j) being the pixel of interest and centrally located within the matrix).

Regarding claim 3, Rao discloses the method as rejected in claim 2 above, wherein each pre-selected halftone dot pattern takes the form of a three-by-three matrix of pixels (Fig. 2).

Regarding claim 4, Rao discloses the method as rejected in claim 1 above, wherein the selected output device is a printer (Fig. 6 numeral 74), and said creating is based upon densitometer inspections of such different pre-selected halftone dot patterns which have been printed by the printer ("The registration marks are used to align the print and determine the location of the center pixel of each configuration. The measurement can be done using some measuring apparatus such as a fine densitometer..." at column 7 line 20), and wherein further, with respect to each such densitometer-inspected pattern, data points used to create the mentioned curve are determined by comparing (a) densitometer-perceived percentage-of-coverage readings that are taken of the printed output pattern with (b) the idealized geometrical-percentage-of-coverage of non-white pixels in the pattern ("What we seek is the probability

distribution of the ink coverage at the center for each pair (C, k) formed by the basic configuration C [percentage of coverage readings] and a number k of dots [geometrical percentage of non-white pixels] to be printed in the peripheral 2-neighborhood of the center” at column 7 line 12).

Regarding claim 5, Rao discloses the method as rejected in claim 4 above, wherein device-printed patterns which are to be densitometer inspected are printed in a larger field containing solely plural ones of such pre-selected pattern (“For each basic configuration C and for each k there corresponds N_k test configurations, obtained by surrounding the basic configuration C with each of the external configurations that [were] chosen” at column 7 line 8).

Regarding claim 6, Rao discloses a method for minimizing color-image halftone dot-gain in the output of a multi-level halftone color-imaging output device comprising:

characterizing that device’s halftone output, on a per-color basis, regarding pixel-pattern-specific dot gain which can be related to device pixel-infeed intensity levels, and from that characterizing, creating and then applying to throughput color-image files, on a pixel-by-pixel basis, a pixel-to-device infeed intensity correction value, thus to minimize device-output dot gain (As rejected in claim 1 above. “For color printers, the method according to the invention is used independently for each color ink” at column 8 line 46).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jmares Washington whose telephone number is (571) 270-1585. The examiner can normally be reached on Monday thru Friday: 7:30am-5:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jmares Washington
Junior Examiner
Art Unit 2609

JW

03/16/07


BRIAN WERNER
SUPERVISOR PATENT EXAMINER